

Editorial:

Blood Type Diet: Scientific evaluation

Enas Talib Abdul-Karim PhD.

Developed by naturopathic physician Dr. Peter D'Adamo, the Blood Type Diet is based on the theory that protein-like compounds in food called lectins react with different blood types to cause a wide variety of health complaints.

The Blood Type Diet is the culmination of nearly four decades of work conducted by Peter D'Adamo, and his father, James D'Adamo, as a naturopathic physician practicing in the 1960s, James wondered why some of his patients did well on the therapeutic diets he prescribed, including strict vegetarian and low-fat diets, while others did not improve or even became worse. James suspected that the difference in the way his patients reacted to the same foods might be rooted in some aspect of the blood. With this hypothesis in mind, he began to record the blood type of his patients and observe their individualized reactions to different diets. Over the years, distinct patterns began to emerge. He noticed that patients with Type A blood did well on a vegetarian diet, while patients with Type O did well on a high-protein, meat-based diet. In 1980, James D'Adamo published his clinical observations in a book titled *One Man's Food*. That same year, Peter D'Adamo began to research the scientific basis for his father's theories. In 1996, nearly twenty years later, Dr. Peter D'Adamo's findings were published in his book, *Eat Right for Your Type*⁽¹⁾.

Dr. D'Adamo's ideas on the relationship between diet and health

are rooted in a simple concept: the blood type-O, A, B or AB-determines the body's ability to absorb nutrients, fight off diseases, and handle stress. Dr. Peter D'Adamo's diet recommendations were born out of evolutionary history, and specifically, the observation that the different blood types emerged as the environmental conditions and eating styles of our ancestors changed. Between 50,000 BC and 25,000 BC, all humans shared the same blood type-Type O. These early humans were skilled hunters, and thrived on a meat-based diet. The type A blood type emerged between 25,000 BC and 15,000 BC, a necessary adaptation to a more agrarian lifestyle. Climatic changes in the Western Himalaya Mountains led to the appearance of Type B, and the blending of Type A and Type B in modern civilization resulted in the appearance of Type AB blood type. Because the emergence of new blood types made it possible for our ancestors to survive the changing environmental conditions, Boyd divided the world population into 13 geographically distinct races with slightly different frequency distributions of blood group genes. Dr. D'Adamo believes that blood type, diet, and health are intricately related; he grouped those thirteen races together by ABO blood group, each type within this group having unique dietary recommendations.

The physiological reason why people should eat according to their blood type relates to lectins, which are protein-like substances found in many

commonly eaten foods. Lectins, also known as phytohemagglutins, were first identified in 1888, at which time it was discovered that lectins interact with sugar-containing molecules on the surface of cells. This discovery allowed certain lectins to be used in blood typing, since blood type is determined by the presence (or absence) of specific sugar-protein residues on the surface of red blood cells.

Although most of the lectins found in food are destroyed by cooking, digestive enzymes, or are inactivated within the gut, at least 5% of the lectins we take in through our diet are absorbed into the bloodstream, and some of these are incompatible with our blood type. Many food lectins look very similar to the antigen that determines one of the four blood types or else bind directly to blood type antigens. In either case, this resemblance can lead to agglutination. According to Dr. D'Adamo "simply put, when you eat a food containing lectins that are incompatible with your blood type antigen, the lectins target an organ or bodily system and begin to agglutinate blood cells in the area". It is believed that if a person want to prevent health problems, it is important to eat foods that are compatible with his blood type based upon their lectin content.

The research done by Nachbar and Oppenheim done in 1980 ⁽²⁾ support Dr. D'Adamo support his work, they studied the edible portions of 88 commonly eaten foods including fresh fruits, roasted nuts, and processed cereals, and found that 29 of the 88 foods tested possessed significant lectin-like activity. The researchers also determined that dry heat does not completely destroy the lectin activity in wheat germ, peanuts, and the dry cereals. in addition, wheat germ

agglutinin, tomato lectin, and navy bean lectin have been found to resist breakdown by digestive juices. As a result, it can be concluded that at least some of the lectins found in food make it into the blood stream.

In the Blood Type Diet, foods are divided into sixteen categories: meats and poultry; seafood; dairy and eggs; oils and fats; nuts and seeds; beans and legumes; cereals; breads and muffins; grains and pasta; vegetables; fruit; juices and fluids; spices; condiments; herbal teas; and miscellaneous beverages. For each blood type, lists of foods described as "highly beneficial", "neutral", or "avoid". in support of his dietary recommendation, Dr. D'Adamo points to research that provides evidence for the presence of lectins in food, the agglutination effects of lectins, and the connection between blood type and the development of disease.

Type O was the blood type of the earliest humans, who were skilled hunters and subsisted on a diet of wild game and edible plants growing wild in the forests. As a result, the diet for individuals with Type O blood emphasizes the importance of animal flesh and vegetables.

Individuals with Type A blood thrive on a plant-based diet and should consume large amounts of raw or steamed vegetables, lentils, soy beans, pinto beans, black beans and whole grains. Berries and plums are also beneficial. Occasional consumption of poultry and fermented dairy products is also well tolerated.

The diet for individuals with Type B blood is more varied than the other blood type diets. They can eat seafood, beef, lamb, and dairy products. Oats and millet, green vegetables, and all fruits are beneficial.

Scientific evaluation

1. Questions of lectin actions

Dr. D'Adamo claims there are many ABO specific lectins in foods ⁽²⁾. This claim is unsubstantiated by established biochemical research, which has not found differences in how the lectins react with a given human ABO type. In fact, research shows that lectins which are specific for a particular ABO type are not found in foods (except for one or two rare exceptions, e.g. lima bean), and that lectins with ABO specificity are more found in non-food plants or animals ^(3, 4), while, the Nachbar study has been cited in support of Dr. D'Adamo's theories.

2. Lack of clinical trials

Another criticism is that there are no clinical trials of the Blood Type Diet, but the self-reported internet survey with 6627 respondents conducted by D'Adamo's website reported that individuals following the Blood Type Diet for a period of one month or more, in 71-78% of cases, had significant improvement in a variety of health conditions. The most common improvement was with weight ⁽⁵⁾. These results, however, are "self-reported".

3. Blood type evolution issues

In a Brazilian medical research journal, Luiz C. de Mattos and Haroldo W. Moreira point out that D'Adamo's assertion that the O blood type was the first human blood type requires that the O gene evolved before the A and B genes in the ABO locus ⁽⁶⁾. However, phylogenetic networks of human and non-human ABO alleles show that the A gene was the first to evolve ⁽⁷⁾. The authors argue that, in the evolutionary sense, it would be extraordinary for normal gene (those of type A and B) to have evolved from abnormal genes (for type O)

Another study from 2004 concluded that: "Assuming constancy

of evolutionary rate, diversification of the representative alleles of the three human ABO lineages (A101, B101, and O02) was estimated at 4.5 to 6 million years ago"⁽⁸⁾. This finding directly contradicts D'Adamo's assertion of blood type evolution. However, D'Adamo has been quite clear in the past that these conclusions were drawn from studies of the epidemiologic effects of migration patterns and infectious disease susceptibility in relation to blood groups distribution and the migration patterns, not natural selection via mutation in any Mendelian sense⁽⁹⁾.

I wish for everyone optimal health, happiness, and longevity. We owe it to ourselves, to our children, and to all who come after them, to see how optimal function and life span can be achieved on diets that are truly sustainable. It is, after all, the food of all our futures.

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